## CLAIMS:

1. A compound of the formula

wherein

5

X is absent or trans or cis CHCH,

R<sub>1</sub> is (C<sub>1</sub>-C<sub>10</sub>)alkyl unsubstituted or substituted by one to three hydroxy, (C<sub>1</sub>-C<sub>10</sub>)alkenyl unsubstituted or

10 substituted by one to three hydroxy, (C<sub>1</sub>-C<sub>10</sub>)alkynyl unsubstituted or substituted by one to three hydroxy, or aryl unsubstituted or substituted by one to three hydroxy;

R<sub>2</sub> is hydrogen, alkyl or aryl;

 $R_3$  and  $R_4$  are, independently of each other, H, 15 halogen, or a solubilizing group,

with the proviso that at least one of  $R_3$  and  $R_4$  is halogen;

or a pharmaceutically acceptable salt thereof.

- 2. A compound according to claim 1, wherein  $R_1$  is aryl unsubstituted or substituted by one to three hydroxy and  $R_2$  is hydrogen.
  - 3. A compound according to claim 1, wherein  $R_1$  is aryl substituted by one hydroxy and  $R_2$  is hydrogen.
- 4. A compound according to any one of claims 1 to 3, wherein  $R_4$  is a halogen.

5. A compound according to any one of claims 1 to 3, wherein  $R_4$  is fluorine.

6. A compound according to any one of claims 1 to 3, wherein the solubilizing group of  $R_3$  or  $R_4$  is

P-N (1.2)

wherein:

5

 $\,$  P and R are each independently selected from  $CH_2,$   $CH_2CH_2$  and  $CH_2CHT$  where T is alkyl, and

Q is O, S, NH or NCH3.

- 10 7. A compound according to claim 6, wherein  $R_3$  is a halogen and  $R_4$  is partial formula (1.2) wherein Q is NH or NCH<sub>3</sub>.
  - 8. A compound according to claim 6 or claim 7, wherein Q is  $NCH_3$ .
- 15 9. A compound according to any one of claims 1 to 8, wherein  $R_3$  is an amine containing heterocycle.
  - 10. A compound according to any one of claims 1 to 8, wherein  $R_3$  is N-methylpiperazine.
- 11. A compound according to any one of claims 1 to 10 20 wherein X is trans CHCH.
  - 12. A compound according to any one of claims 1 to 11, wherein  $R_1$  is hydroxyethanol.
  - 13. A compound according to any one of claims 1 to 11, wherein  $R_1$  is hydroxyaniline.

14. A compound according to any one of claims 1 to 11, wherein  $R_1$  is hydroxyphenyl.

- 15. A compound according to any one of claims 1 to 11, wherein  $R_1$  is 2-hydroxyethanol.
- 5 16. A compound according to any one of claims 1 to 11, wherein  $R_1$  is 4-hydroxyaniline.
  - 17. A compound according to any one of claims 1 to 11, wherein  $R_1$  is 4-hydroxyphenyl.
- 18. A compound according to any one of claims 1 to 17, wherein R<sub>2</sub> is phenyl, substituted phenyl, pyranyl, substituted pyridinyl, thiophenyl, substituted thiophenyl, furanyl, substituted furanyl, thiazole, oxazole or substituted or unsubstituted imidazole.
- 19. A compound according to claim 12 or claim 15, wherein  $R_2$  is N-alkyl imidazole.
  - 20. A compound of the formula 6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-(p-hydroxyanilino)-quinazoline.
- 21. A compound of the formula 7-(4-methylpiperazino)-6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-(p-hydroxyanilino)-20 quinazoline.
  - 22. A compound of the formula 6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-chloroquinazoline.
  - 23. A compound of the formula 7-(4-methyl piperazino)-6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-chloroquinazoline.
- 25 24. A compound of the formula 6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-(3H)quinazolinone.

25. A compound of the formula 7-(4-methylpiperazino)-

PCT/CA2004/001466

6-fluoro-2-[2-(5-nitro-2-furyl)vinyl]-4-(3H)quinazolinone.

WO 2005/014585

10

15

20

25

- 26. A composition comprising a compound according to any one of claims 1 to 21.
- 5 27. A composition comprising a compound according to any one of claims 1 to 21, and a carrier, diluent or excipient.
  - 28. A pharmaceutical composition comprising the compound according to any one of claims 1 to 21, and a pharmaceutically acceptable carrier.
  - 29. A method for treating a bacterial infection in a human or an animal, comprising administering to said human or said animal a therapeutically effective amount of a compound according to any one of claims 1 to 21, effective in treating the bacterial infection.
  - 30. A method of preventing a bacterial infection in a human or an animal, comprising administering to said human or said animal a prophylactically effective amount of a compound according to any one of claims 1 to 21 effective to prevent the bacterial infection.
  - 31. A method for disinfecting an object, including a human, of bacteria, comprising: contacting the object with the compound according to any one of claims 1 to 21 in an amount and for a time sufficient to achieve a desired degree of disinfection.
  - 32. A method of use of the compound according to any one of claims 1 to 21, for antisepsis of an object, including a human, of bacteria, comprising: contacting the object with the compound according to any one of claims 1 to

21 in an amount and for a time sufficient to achieve a desired degree of antisepsis.

- 33. A method for sterilizing a surface of an object, including a human, of bacteria, which comprises: selecting an area of the surface for sterilization and applying the compound according to any one of claims 1 to 21, onto the surface of the object in an amount and for a time sufficient to achieve sterilization.
- 34. Use of the compound according to any one of 10 claims 1 to 21, in the manufacture of a medicament for treating or preventing bacterial infection.
  - 35. Use of the compound according to any one of claims 1 to 21, for treating or preventing bacterial infection in humans or animals.
- 15 36. Use of the compound according to any one of claims 1 to 21, for disinfection.
  - 37. Use of the compound according to any one of claims 1 to 21, for antisepsis.
- 38. Use of the compound according to any one of claims 1 to 21, for sterilization.
  - 39. A process for the preparation of a compound of formula 1.0

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are as defined in claim 1,

25

the process comprising:

5

10

15

20

a) reacting a compound of formula (1.3)

$$R_4$$
 $NH_2$ 
 $NH_2$ 
 $NH_2$ 

with hydrochloric acid, acetic anhydride and aqueous ammonia, to form a compound of formula (1.4)

b) reacting the compound of formula 1.4 with 5-nitro-2-furancarboxaldehyde, to form a compound of formula (1.5)

$$R_4$$
 $NH$ 
 $NO_2$ 
 $NO_2$ 
 $NO_2$ 
 $NO_2$ 

c) reacting the compound of formula 1.5 with phosphorus pentachloride and phosphorus oxychloride to form a compound of formula (1.6)

$$R_4$$
 $N$ 
 $O$ 
 $NO_2$ 
 $(1.6)$ 

and

d) reacting the compound of formula 1.6 with a compound of the formula (1.7)

$$X \longrightarrow N$$
 $R_2$ 
 $(1.7)$ 

5 wherein X is H and  $R_1$  and  $R_2$  are as defined above.

40. A process for the preparation of a compound of formula 1.0

$$R_1$$
 $R_2$ 
 $R_4$ 
 $R_3$ 
 $R_4$ 
 $R_3$ 
 $R_4$ 
 $R_2$ 
 $R_3$ 
 $R_4$ 
 $R_3$ 
 $R_4$ 
 $R_4$ 
 $R_5$ 
 $R_5$ 
 $R_5$ 
 $R_5$ 
 $R_5$ 

10

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are as defined in claim 1,

the process comprising:

b) reacting a compound of formula 1.4

$$R_4$$
 $NH$ 
 $CH_3$ 
 $(1.4)$ 

15

with 5-nitro-2-furancarboxaldehyde, to form a compound of formula (1.5)

$$R_4$$
 $NH$ 
 $NO_2$ 
 $(1.5)$ 

c) reacting the compound of formula 1.5 with phosphorus pentachloride and phosphorus oxychloride to form a compound of formula (1.6)

and

5

d) reacting the compound of formula 1.6 with a 10 compound of the formula (1.7)

wherein X is H and  $R_{\text{1}}$  and  $R_{\text{2}}$  are as defined above.

41. A process for the preparation of a compound of 15 formula 1.0

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are as defined in claim 1,

20 the process comprising:

c) reacting a compound of formula 1.5

$$R_4$$
 $NH$ 
 $NO_2$ 
 $(1.5)$ 

with phosphorus pentachloride and phosphorus oxychloride to form a compound of formula (1.6)

$$R_4$$
 $N$ 
 $O$ 
 $NO_2$ 
 $(1.6)$ 

and

5

10

d) reacting the compound of formula 1.6 with a compound of the formula (1.7)

$$X \longrightarrow N \qquad \qquad R_1$$

$$R_2 \qquad \qquad (1.7)$$

wherein X is H and  $R_1$  and  $R_2$  are as defined above.

42. A process for the preparation of a compound of formula 1.0

wherein  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  are as defined in claim 1, the process comprising:

d) reacting a compound of formula 1.6

$$R_4$$
 $R_3$ 
 $N$ 
 $O$ 
 $NO_2$ 
 $(1.6)$ 

with a compound of the formula (1.7)

5

$$X \longrightarrow N \xrightarrow{R_1} R_2$$
 (1.7)

10 wherein X is H and  $R_1$  and  $R_2$  are as defined above.